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(19) **United States**(12) **Patent Application Publication****Lim et al.**(10) **Pub. No.: US 2006/0132488 A1**(43) **Pub. Date: Jun. 22, 2006**(54) **APPARATUS AND METHOD FOR
REPRESENTING MULTI-LEVEL LOD
THREE-DIMENSIONAL IMAGE****Publication Classification**(51) **Int. Cl.**
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Jul. 8, 2005 (KR) 10-2005-0061731(57) **ABSTRACT**

Provided are an apparatus and a method for representing a multi-level LOD three-dimensional image. The present invention configures a multi-level LOD hierarchical mesh for each hierarchical level with a different LOD level by arranging triangular patches of a upper hierarchical level- (lower resolution) to have approximately $k \times k$ of triangular patches of an lower hierarchical level (higher resolution) and samples information on height of a target image to allocate the sampled height information to each vertex of the triangular patches included in the multi-level LOD hierarchical mesh, determines an LOD of each triangular patch according to a view point of a virtual camera, and connects the adjacent triangular patches without gaps when adjacent triangular patches among the triangular patches of the multi-level LOD hierarchical mesh have different LOD levels.

